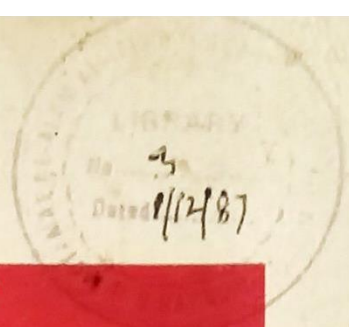


ARAB AFFAIRS



**The Arab League and
Arab International Affairs** Ahmed Y. El-Kurai

**European Attitudes Towards the Arabs Since
the European Withdrawal From the Middle East** Edward Mortimer

**Afro-Arab Cooperation:
An Economic Strategy for the 1980 s** Bichara Khader

**Early Arab-Islamic Culture: Currents
Contributions And Transmission of the Legacy** Nicola A. Ziadeh

Nuclear Power: A Countdown for Realism? Dr Adnan Mustafa

Document: Reporting the Arab World

New Books

Bibliography

Chronology

Useful Information



EARLY ARAB ISLAMIC CULTURE: CURRENTS, CONTRIBUTIONS AND TRANSMISSION OF THE LEGACY

Nicola A. Ziadeh

Emeritus Professor of Arab
History The American Uni-
versity of Beirut

Within one hundred years of the death Muhammad, the prophet of Islam, at Medina in 632, the Arabs of the Peninsula, the fringes of Iraq and the inner parts of Syria, prompted by a new faith and encouraged by a succession of victories, had destroyed the empire of the Sassanids, wrested Syria, Lebanon, Palestine, Egypt and North Africa from the Byzantines, brought the power of the Visigoths in Spain to an end, penetrated into the Valley of the Indus and Central Asia, and thus brought this vast area under their control. This relatively sudden appearance of an empire brought with it a number of problems.

The most urgent was the establishment of administrative machinery to run the area and its peoples. Muhammad was a prophet, a leader, and ruler of the Umma (community) he founded at Medina, which in turn provided the governors for various parts of Arabia as their people accepted the faith. His death, which brought prophecy to an end, created a vacuum in leadership and administration. The two major groups in Medina — the **Muhajirun** (Emigrants), who had come with the Prophet from Mecca, and the **Ansar** (Supporters), who were Medinese by origin, raced for the leadership, and conflict ensued. The **Muhajirun** carried the day and Abu Bakr was chosen as **Khalifa** (caliph) of the Messenger of God. This temporary device provided the now expanding community with a working system. 'Umar I was entrusted with the job by Abu Bakr. The third Caliph, 'Utman, was chosen by a body of electors, six in number, who chose one from amongst themselves. Ali, the fourth Caliph, was acclaimed by a form of popular vote. It is obvious each of the four caliphs ran the affairs of the state, or accepted the actions of his far-flung

governors or commanders, to the best of his judgment. Each of them was known as **Khalifa rasul Allah** (Caliph of the Messenger of God); in addition Umar I assumed the title of **Amir almu'minin**, the Prince (or Commander or Adviser) of the faithful. Both titles continued to be used throughout the history of Islam.

This system of «choosing» the Caliph came to an end when Mu'awiya, the first caliph of the Umayyads (661-750), assumed authority and established a dynasty. From then on, with rare exceptions, the dynastic pattern of «ruling» became a permanent form in Islam.

Besides a limited experience in running their local communities in places like Mecca and Medina, looking after annual fairs and markets, and organizing caravans which traversed the territory of their original abodes, the Arabs had no real notion of the meaning of administration of day to day problems of a civil, financial, military or religious nature. Hence, men entrusted with such public affairs resorted to the practices of earlier people and adopted whatever came from Persia and Byzantium, the successors of the Greeks and Romans. One must remember that the guiding principles and ideals were basically Islamic, emanating principally from the Qur'an and the Traditions of the Prophet. The Caliph was the guardian of the law, but he was not a legislator, and until time came when Shari'a (Islamic law) developed to meet the needs of the vast new **Umma** (Community), men on the spot had to deal with such matters through administrative orders.

However, under the Umayyads, particularly Abdul-Malik (685-705) and his son al-Walid (705-715), some steps were taken to create an administration which was Arab in form and content, not only in name. The records began to be written in Arabic (they had been kept in Persian in the East, in Greek in Syria and in Coptic in Egypt); coins received Arabic inscriptions and the gold dinar a new weight and thus a new value. Under the Abbasids (750-1258), Persian and Turkish elements were introduced and by the time the Mamluks (1250-1517) ruled Syria, Lebanon, Palestine, Egypt and the Hijaz, Arab-Islamic administration had become complex, and it was scarcely possible to recognize the original Arab elements in it.

The creation of the Arab-Islamic empire did not mean only conquest and administration. There was considerable social change and mixture of races. For a short time the Arabs were to remain isolated communities of armed people and land ownership

was forbidden to them. This was instituted by the second Caliph, Umar I, and carried out by his successors, until Umayyad rule, although not too strictly adhered to. But land-holding was too tempting not to wet the appetite of the Arabs, and they began acquiring land although they did not work it themselves. This led to some intermixture between them and the original local population. But more important than this was the transfer of people and their encouragement to move within this vast empire. Persians were stationed as soldiers in Basra and Kufa under the early Umayyads. Mu'awiya himself ordered Persians to be transferred and settled along the coasts of Syria, Lebanon and Palestine. When the Arabs conquered Spain they had many Berbers in their armies — the conqueror of Spain himself, Tariq ibn Ziyad, was a Berber. Many Berbers settled in Spain; they were followed by many more later on. Arabs went to all parts of the area as warriors, settlers and merchants. Turks found their way into the central parts of the empire, first as mercenaries under the early Abbasids and later as masters (the Saljuks) and settlers like the Turkomen. Kurds had lived in the territories of the Islamic state and now intermingled with the other elements of the population.

In addition, the slave markets soon filled with Blacks from Central and East Africa, Slavs from the North and Circassians. Concubinage at the royal palaces, houses of ministers, army leaders and rich merchants prevailed. This brought about a significant degree of racial mixture. The institution of the pilgrimage led to further intermixture, for many pilgrims never went home. They chose the stay at many places in the East, as attested by the numerous Maghribi **Zawiyas** (convents) which one comes across in the Holy Cities of Arabia, Jerusalem and Damascus.

The creation of the Arab-Islamic empire brought about the spread of Islam and Arabic. Islamization and Arabization were two parallel movements and the one helped the other; the first being more effective, faster and more complete than the latter.

The social and racial intermixture and change which took place during the first three centuries of Islam seems to be a unique experience in history. Never before, or after, excluding the United States of America, has such a thing happened. The empire of Alexander brought with it Greek settlers who remained, for all practical purposes, isolated communities in the cities of the East. Greek became the language of the educated elite but not the language of the masses. The Romans brought with them their laws, architecture and art; but Latin remained an **official** language

only. Even the revival of the Greek language and culture under the Byzantines was limited to small areas. Under the aegis of the Arabs and Islam, on the other hand, there was a profound change in the life of the empire's peoples, at least those living between the Land of the Two Rivers and the coasts of the Atlantic.

It was within this new environment and in this milieu, during the first three or four centuries of Islam, that Arab-Islamic civilization grew, developed and bore the fruits which were later transmitted to the West. This civilization was Islamic in so far as the guiding legal, ethical and moral principles and the force which prompted people to behave in a certain way, were concerned. It was Arabic with respect to the instrument of expression which was used, throughout the empire, until Persia regained its national consciousness, until Islam spread into areas where Arabic remained only a sacred language, and until the Turks (Ottomans) established themselves as a nation-state. Then Islamic thought, literature, religious experience and philosophy came to be expressed in languages other than Arabic. During the golden age of Arab Islamic civilization Arabic ruled supreme. It also became the day to day language of the people and was used in the mosque, school, market place and on the roads, as well as at the royal courts and chanceries.

The elements which went to produce the Arab-Islamic civilization were: Islam, Greek thought and science, Neo-Platonism, Indian science, Persian literature and social life and Arabic.

Islam was a clear-cut monotheistic religion with a revealed book — the **Qur'an**. This, and the traditions (sayings) and the **Sunna** (practices and rulings) of the Prophet were the original sources of Islam. Islam did not provide its followers with just a credo and a code of ethics; it detailed duties and responsibilities, particularly in matters of personal status. In other words, Islam was a way of life covering practically all its aspects. The Qur'an contained all that the Islamic **Umma** needed. There were no legislators in Islam; there were only interpreters of the law.

It is not the purpose of this paper to discuss the tenets of Islam, but the reader should be reminded that a Muslim expressed his belief through the **shihada**, witnessing to the absolute unity of God and the fact that Muhammad was his messenger; he prayed five times a day, fasted during **Ramadan**, paid his **Zakat** (alms) regularly and, when capable of doing so, performed the pilgrimage. These were the pillars of Islam. Besides, Islam emphasized righteousness, justice, honesty and good deeds. Such teachings

and practices of Islam had their impact on the Arabs of the Prophet's day, who accepted them without objection or investigation. But once Islam came out in the open, it found itself living within more intellectually sophisticated societies, some of which had already adhered for generation to one montheistic religion or another, while others had persistently remained pagan. Both groups constituted a challenge to Islam.

By the fifth century A.D., Christianity had spread in the Near East and churches had already differed amongst themselves in matters pertaining to the nature and will of Christ, the relation between the Father, the Son and the Holy Ghost, and various other theological problems. In order to develop the art of argumentation the various groups of Monophysites, the Monothelites, the Orthodox Melkites and others had adopted the Greek instruments of dialectical arguments, Greek philosophy and logic. About the same time, and during the subsequent two centuries, seats of learning were transferred from Alexandria to Gaza, Antioch, Harran (Carrhae), ar-Ruha (Edessa) and Jundishapur, the last was within the Empire of the Sassanids, while the former were mostly under the control of the Byzantines. As many of the churches and church fathers, particularly the Monophysites and the Nestorians, used Syriac as the instrument of argumentation, a great deal of Greek philosophy and logic had been translated into that language. Once translation began, it carried with it scientific knowledge which was, strictly speaking, outside the fields of philosophy and logic, especially medicine and mathematics. When the Arabs took the Sassanids empire on the one hand and a large part of the Byzantine domain on the other, the Syriac-speaking learned men fell under the control of the Arabs, and were therefore the first people to introduce the Arabs to the intellectual heritage of the Greeks, until the Arabs established direct contacts with the Greeks.

Plotinus was a Greek who lived in Egypt in the third century A.D. He was the father of Neo-Platonism, while Porphorius is considered its real philosopher. The principal contribution of Neo-Platonism to the intellectual life of the age was the idea of illumination and of emanation which purported to explain the first cause of creation. Neo-Platonism was in principle a combination of Greek ideas to which were attached symbols from the mystery religions of the ancient East. It was this theory of emanation which captured the imagination of Muslim thinkers during the first two or three centuries of Islam.

Early in the Abbasid period Indian astronomical tables found their way to the court of Baghdad and along with Indian medical knowledge, they attracted the attention of Arab astronomers, who, acquainted also with Ptolemy, combined the two into an astronomical geography with ruled supreme throughout the Middle Ages. Side by side with astronomy, astrology gained a prominent position at the royal courts of Islam as it had at many earlier courts.

Persia gave the Arabs valuable literature, the best known of which is **Khalila wa Dimna**. Persian literary influence, however, is not clearly discernible because the impact was gradual. When Baghdad inherited the social life of earlier Ctesiphon (al-Mada'in), much of Persian social life found its way into the life of the new empire through continuous day to day participation.

Arab apprenticeship in the intellectual world with which the Arabs came into contact lasted for a relatively short period. It was a period of translation. Khalid bin Yazid (680-683), an Umayyad prince, interested himself in alchemy and other subjects and some works were translated for him by Stephen of Alexandria from Coptic and Greek. But serious translations had to await the Abbasid dynasty and the foundation of Baghdad. Most of the early translators were Nestorians and other Christians, the holders of the torch of learning within the areas conquered by the Arabs. Already under al-Mansur (754-775) translations of Greek works into Arabic, through Syriac, were made; works in medicine, geometry and astronomy were included, many of which were revised later. Under Harun ar-Rashid and his sons and successors, al-Amin and al-Ma'mun (786-833), serious and comprehensive translations were done. The pioneers had chosen books which interested them personally, or which al-Mansur thought interesting. Later translators worked more systematically.

It is possible to trace three groups of translators who catered to specialized fields. The school of Hunain ibn Ishaq, which included his son Ishaq, his nephew Hubaish and some students as 'Isa and Musa; they were all Nestorians. Hunain translated mainly from Greek into Syriac, while his son and others rendered that into Arabic. This school concentrated on medicine, making the works of Galen, Hippocrates and Dioscorides available in Arabic. They also added works of Plato and Aristotle. When al-Ma'mun founded **bait al-hikma** (the house of wisdom) Hunain was made head translator.

The second school, Christian Jacobite (Monophysite) in character, belongs to the tenth century. Its principal representative was Yahya ibn 'Adi, who had a number of helpers. This school was responsible, primarily, for translating works in Greek philosophy and Neo-Platonism, and it brought philosophy and logic to the world of Islam.

In addition there was a third school, whose head was Thabit ibn Qurra, a Saba'ite heathen from Harran (Carrhae). He was helped and followed by members of his own family, such as his sons Ibrahim and Sinan, and two grandsons, and al-Battani. This school translated the bulk of the Greek mathematical and astronomical treatises. It was al-Hajjaj ibn Matar of this school who translated Ptolemy's **Almagest**, and Euclid's **Elements**.

There were also translations from other fields of learning. The first source of Arab knowledge of astronomical geography was Indian. This took place already in the last decades of the eighth and the early part of the ninth century. An Indian astronomer was a member of a political mission which visited Baghdad under al-Mansur. He had brought with him a treatise on astronomy. Al-Fazari and a friend made a translation of it, which came to be known in Arabic as **Kitab as-sindhind**, the book of Sind and India (from its Indian name Sidhatta). It contained a discourse on the heavenly bodies and their movements, the places of planets in the Zodiac, and the cycles of the three planets. More of this Indian knowledge reached the Arabs through Persian.

By the middle of the ninth century the Arabs had become acquainted with Greek astro-geographical knowledge. The name of Ptolemy, the Greek geographer of the second century A.D., soon caught the imagination of Arabs interested in those fields. His work, which came to be known as **Almagest** was redone into Arabic by al-Khwarizima about A.D. 830. This was more an adaptation than a direct translation. Al-Khwarizmi added Indo-Persian notions, and also some knowledge advanced by Arabs. The work was considered the first Arabic geographical treatise.

Mention has already been made of Jundishapur, which became in the sixth century the foremost seat of learning in the area under the patronage of Chosroes Nushirwan. A number of factors combined to make it so. In the fifth century the Nestorians, condemned as heretical by the Council of Ephesus, migrated from Edessa to Jundishapur and carried with them their medical and scientific knowledge. Early in the sixth century Justinian closed the philosophical schools and some Greek scholars wandered east

and settled in Jundishapur. Here, under the patronage of the Persian ruler, Greek, Syrian, Persian and Indian seekers of knowledge met in an atmosphere which stimulated intellectual activity. The works of many Indian physicians were translated here from Sanskrit into Pahlavi; later this heritage passed to the Arabs. Gradually the savants and physicians of Jundishapur moved to Baghdad which became the new seat of intellectual life.

Sergius of Ras al-'Ain (d. 536) began the translation of Greek medical literature into Syriac. Prominent physicians began to write their own manuals like the **Pandects** of Ahron. Under the early Abbasids translation of medical works into Arabic became important. Hunain had translated Galen, who became the main source for the Arabs until Hippocrates received an Arabic rendering.

We turn again to Jundishapur for the beginning of translation of sciences into Syriac first and then into Arabic. Sciences as such proved less attractive than medicine, yet works like Aristotle's **Parva naturalis** and pseudo Aristotelian treatises, like **On the Cosmos** and **On the Soul**, were translated into Syriac at Jundishapur. With the transfer of learning to Baghdad and the interest in translation into Arabic, a new phase took place. By the end of the ninth century most of the scientific works of Aristotle were available in either Syriac or Arabic, such as the **Physics**, the **Meteorology**, the **De Anima**, the **De Sensu**, and the **De Generatione et Corruptione**, whose translators are, so far, considered anonymous. Works by Hellenistic authors were also translated. It is interesting to note the extent to which personal views influenced the course of translation. Because Hunain and al-Kindi (d. 870) took the view that chemistry was a fraudulent science, little in that field was translated later, however, there was serious interest in both chemistry and alchemy.

The court of al-Mansur had a prominent astronomer, Naubakht, beside other learned people. One of them al-Fazari, rendered the Indian "Sindhind" into Arabic (c. 770); about the same time al-Farrukhan translated Ptolemy's **Quadripatrium**.

Translations were not restricted to Jundishapur or Baghdad; apparently the Aghlabids of Tunisia (800-909) established, at their court, a **dar al-'ilm** (house of learning) where some translations from Latin were made.

It is not possible to draw a line between the period of apprenticeship of the Arabs and the later period — such division in time never existed. For while translations were still being done and older

ones being revised, some people already began to write on various subjects in Arabic. The two processes, at least for some time, went hand in hand.

Within developing Arab-Islamic society there grew a vivid and dynamic atmosphere of learning with challenges, responses and tensions. It had already begun in Damascus, but it was partly subdued there because the Umayyad capital occupied itself with another round of conquests which carried Arab arms into Spain, the Indus Valley and Transoxania; and it also addressed itself to the business of creating an administrative machinery for running the vast empire. Besides, the last three decades of the Umayyad rule were chaotic and were spent fighting revolutionary movements which eventually brought the Abbasids to power (750). Then Baghdad was founded, and into it moved all sorts of people, and into that city poured the wealth of the empire. The royal court acquired new and vast dimensions and learning flourished. The city has been described as the «nest of the learned,» and although it was the greatest seat of learning, there were other centres, such as Basra and Kufa, and others soon developed in the eastern parts of the new empire, particularly within the confines of ancient Persia. They were all deeply concerned with matters which centered around God, His messengers, the creation, the universe and, last but not least, man himself.

What course did the new intellectual activities, following the period of apprenticeship, take? It has been customary to divide Arab-Islamic intellectual activities into two groups - **al-ulum an-naqliyya** (traditional sciences) pertaining to Islam as such, and **al-ulum al-aqliyya** (sciences based on reason) covering all foreign branches of knowledge. I wish to identify three separate courses which were followed by men of learning. The first was one which defined the relation between God and His creation; the second included sciences, both pure and applied, such as medicine, astronomy, physical science, engineering, agriculture and others; the third course covered philosophical thought and Sufism (mysticism).

The first course, which attempted to define the relations between God and man was based on the teachings of the Qur'an, the revealed word of God, which prescribed faith, the place of man in the creation, his duties towards the Creation and his responsibilities towards his fellow men. The **Sunna** of the Prophet explained, interpreted and complemented what was not clear, or lacking in detail, of the Qur'anic injunctions. Two Islamic sciences appeared

in the first two centuries of Islam: **tafsir** (interpretation of the Qur'an) and **hadith** (the collection and organization of the sayings of the Prophet). The new society, and especially the community of believers, was in need of laws to control its behaviour. The arrangement of issuing administrative orders to face immediate problems could not last; with time, a large body of **ulema** (men learned in the two sciences just mentioned) appeared and they were entrusted with judiciary functions of the state. Within three hundred years from the death of the Prophet a number of legal schools had come to be known in the world of Islam; and they had all accepted the Qur'an and the **Sunna** as bases of their interpretations. They had already differed about accepting other grounds for legal speculation, namely **ijma** (consensus of opinion), **ra'y** (personal opinion) and **qiyas** (analogy). Of these schools four came to be recognized and known as rites: Maliki, Hanafi, Shafi and Hanbali. Until late in the ninth century **ijtihad** (personal endeavour to interpret the Qur'an) had been allowed; within reason men could apply their own ways and means for this. But this changed interpretation could be exercised only within the confines of the four madhabi(rites). Thus by the end of the tenth century the terms of reference for the behaviour of the Muslim community, legally, socially, ethically, morally and spiritually, had become clear: they were revelation and **shari'a** (Islamic law). Remembering that Islam did always think of life, in its various manifestations, as one unit, we can understand the meaning of the restrictions imposed on interpretations resulting from limiting people's horizons to the four schools.

This applied to Sunnism (orthodoxy), for there was another division in Islam with the appearance of Shi'ism. Shi'ism was more flexible: it allowed **ijtihad** to continue, and was ready to assimilate foreign ideas. But Shi'ism spent its energy formulating its own doctrines, establishing its own system of thought, and defending both the doctrines and the system against Sunnism. It concentrated on inner problems and failed to develop a philosophy along Greek lines.

The second course which intellectual life in the world of Islam followed dealt with practical aspects of life. The various branches of knowledge and practices covering mathematics, physics, astronomy (and astrology), engineering, medicine, pharmacy, agriculture, botanical and zoological sciences, architecture and decorative arts served the society at large and had no conflict with Shari'a.

Then we have **the third course**: philosophical thought and **Sufism**. When Muslims became acquainted with Greek philosophy, Neo-Platonism and other similar systems, they used the instruments of such philosophies, as was case with the various churches that had existed in the area before Islam, to explain the new faith and argue their stand against other faiths. Philosophy always had concerned itself with problems of the universe, creation, man and the nature of the deity. It had tried, at various stages, to probe matters of a metaphysical nature. When Muslim thinkers moved to apply these methods to matters on which revelation had already said the last word, the intellectual enterprise acquired new dimensions and created complex reactions.

The basic issue to which Muslim philosophers from al-Kindi (d. 870) to Ibn-Rushd (Averroes) (d. 1198) addressed themselves was an attempt to reconcile reason with revelation, **hikma** (philosophy) with **shari'a**. Al-Kindi considered philosophy as aiming at ascertaining the truth, and a philosopher, he held, should conduct himself in accordance with the truth he discovers. To him **shari'a** (both law and theology) depended on revelation, while philosophy depended on reason; the instrument of the first was faith, while logic was the vehicle of the other. As both revelation and reason seek the truth, there should be no contradiction between their results. Prophetic truth was, in other words, of the same nature as the truth which is attained by the philosopher.

Later philosophers, ar-Razi (d. 925), al-Farabi (Alfarabus d. 950), Ibn-Sina (Avicenna, d. 1073), Ibn Tufail and Ibn Rushd differed from one another but this theme- the compatibility of the two truths- was their primary concern. And this attitude was what made them strangers to the theologians, the fuqaha (scholar-jurist) and the ulema.

In its beginning Sufism was considered on ascetic and pietistic form of Islamic faith and worship. This did not continue to be so. Sufism became spiritual protest and a rebellion against legalistic Islam. This attitude was partly tolerated. But when some Sufis began teaching **hulul** (communion) and similar doctrines, they ceased to be, strictly speaking, faithful Muslims. They were accused of **kufr** (atheism). They and the philosophers were grouped more or less together.

These three courses of Arab-Islamic intellectual life enjoyed a period of prosperity and progress as long as two conditions existed: an enlightened regime which patronized learning at large, and institutions providing the necessary havens for workers in

such fields. **Bait al-hikma** of Baghdad is an example of latter, men like Al-Mansur, ar-Rashid, al-Ma mun and Ja-Mutawakkil are examples of the former. But these conditions did not last. The early victorious Islamic state soon found itself on the defensive: internally against provincial governors who sought autonomy if not independence; against royal mercenaries who became new masters of the political scene; and against leaders who assumed power and authority over and above caliphs like the Buyids and the Saljuks. The political challenges would not allow an institution like **bait al-hikma** to exist. On the contrary, the way was paved for an alliance between the new masters of political life and the exponents of **shari'a** and theology, (**ilm al-kalam**). The ascendancy of these sciences meant the downfall of philosophy and Sufism. This is clearly illustrated by the foundation of the regular official **madrassa** (school) by Nizam al-Mulk, the Saljuki vizir. The spread of this religious institution throughout the world of Islam coincided with the rise of the new masters (Saljuks, Ayyubids and Mamluks in the East, the Murabitun and Muwahhidun in the West), with the victory of Sunnism (the Fatimid Isma'ili caliphate of Cairo was brought to an end in 1171), and with the life of al-Ghazzali (d. 1111). Al-Ghazzali, the most vehement opponent of philosophy and Sufism in the East, was not a cause of the death of philosophy, but rather a symptom of the changing times.

Thus, the early parallel development of the three courses of intellectual life in Islam brought the first (religious) and the third (philosophical) to a clash ending in the complete victory of the first. Philosophy flourished in Spain in the twelfth century under Ibn Bajja, Ibn Tufail and Ibn Rushd, but so far as the East was concerned it was a voice in the wilderness. With the death of Ibn Rush (1198) philosophy in the Muslim West also came to an end. Sufism escaped from the Arabs and became a Persian speciality (with the exception of the Andalusian Ibn al-Arabi who died at Damascus in 1246). What remained of Sufism in the Arab East was what had been Sunnized by al-Ghazzali.

One course (the second) of learning continued unmoslest by the theologians and authorities - the practical sciences and arts which contributed to the welfare of the society: medicine, pharmacy, geography, astronomy, engineering and architecture. Scholarship in these areas continued in many cases certain branches of knowledge reached high points of success.

Arab-Islamic civilization was the product of a variety of factors. It contributed much to the advancement of human progress.

Arab scholars began contributing to scientific knowledge while still translating. Like earlier scholars, Arab authors had their 'pandects', manuals discussing ailments in a systematic way, like that of Thabit (ibn Qurra). They also wrote books in question and answer. Hunain wrote '**Questions on Medicine**', then his '**Ten Treatises on the Eye**'.

Looking at medicine one finds there was a change from writing 'pandects' to producing encyclopedias. This was followed by an emphasis on practical work and experience, made possible through the establishment of numerous hospitals throughout Islamic world.

The names of physicians include Rhazes of the ninth and tenth centuries and Avenicenna of the eleventh century, next to whom come Ishak and al-Jazzar of Tunisia, Abbas of Iran, Abulcasis of Spain, Ibn Zuhri of Morocco, and many others. Rhazes, (ar-Razi), produced al-Hawi, or the Comprehensive Book, which was known to Europe as Continens. It included Greek, Syrian, Arabic, Persian and Indian medical knowledge and lore.

Abbas's work was called **al-Kitab al-Maliki** in Arabic and received the Latin name of 'Liber regius' in which he summed up the current theory and practice, and added a discourse criticising earlier medical knowledge, both Greek and Arabic.

Avicenna, who has been called the philosopher of the physicians, exercised a great deal of influence on Europe. His book, **al-Qanun**, known to Europe as the Canon of Medicine, is considered to be «the culmination and masterpiece of Arabic systematization. This medical encyclopedia deals with general medicine, simple drugs, diseases affecting all parts of the body from the head to the feet, especially pathology and pharmacopeia.» Let me also mention that the Arabs contributed considerably to the knowledge of drugs, surgery, and ophthalmology.

Rhazes has left a description of small-pox which is most accurate.

«The outbreak of small-pox is preceded by continuous fever, aching in the back, itching in the nose and shivering during sleep. The main symptoms of its presence are: back-ache with fever, stinging pain in the whole body, congestion of the face, sometimes shrinkage, violent redness of the cheeks and eyes, a sense of pressure in the body, creeping of the flesh, pain in the throat and breast accompanied by difficulty of respiration and coughing, dryness of the mouth, thick salivation, hoarseness of the voice, headache and pressure in the head, excitement, anxiety,

nausea and unrest. Excitement, nausea and unrest are more pronounced in measles than in small-pox, whilst the aching in the back is more severe in small-pox than in measles».

Theoretical mechanics soon proved attractive subjects to people who wrote on balances, water-wheels and allied questions. We have a book on mechanics written about 860 by the sons of ibn Shakir, three brothers who were all mathematicians. The name of the book is **Book of Artifices**.

As a result of the growing trade with the East, precious stones found their way into the Arab empire more than in any previous period, and stones became an attractive subject to many authors.

It was Rhazes who revived interest in alchemy. In his book entitled **Book of the Art (of Alchemy)**, Rhazes classified the substances exactly and described chemical processes.

The greatest name associated with Arab chemistry is that of Jabir (ibn Hayyan). The works carrying his name belong to the tenth century. Modern historians have come to the conclusion that his was a mixture of Greek scientific research and Persian practical knowledge of medicine and poisons.

The fundamental premises of alchemy as viewed by Egyptian and Greek thinkers were: (1) All metals are in reality the same. Hence one could be transmitted into another. (2) Gold is the purest of metals, with silver coming second. (3) A substance capable of effecting the transformation of base into pure metals is in existence. It became the purpose of alchemists to find the substance capable of this transformation. It followed that alchemy, which in the hands of Jabir was a matter of experimental research, tended to become the subject of speculation and superstitious practice, passing into deception.

Because of this mingling of facts and superstition, Jabir came to be considered the author of about one hundred books. When Jabir-scholars separated, as much as they could, the true from the false, it transpired that the man had recognized the importance of experimentation; and thus he made serious contributions to science.

«On the practical side, 'Jabir' described improved methods for evaporation, filtration, sublimation, melting, distillation, and crystallization. He described the preparation of many chemical substances, e. g. cinnabar (sulphide of mercury), arsenious oxide, and others. He knew how to obtain nearly pure vitriols, almus, alkalis, salammoniac, and salpetre, how to produce so-called

'liver' and 'milk' of sulphur by heating sulphur with alkali, and so on. He prepared fairly pure mercury oxide and sublimate, as well as acetates of lead and other metals, sometimes crystalized. He understood the preparation of crude sulphuric and nitric acids as well as a mixture of them, aqua regia, and the solubility of gold and silver in this acid."

Rhazes was both a physician and physicist. The same can be said of Avicenna. Both were also great philosophers. Avicenna also wrote a treatise on the formation of mountains, stones and minerals, in which he discusses earthquakes, wind, water and temperature.

Likewise al-Biruni, of the tenth and eleventh centuries, was physician, mathematician, astronomer, physicist, geographer and historian. He determined the specific weight of eighteen precious stones and metals - a great contribution to physics. In another of his works he describes the natural, commercial and medical characteristics of numerous precious stones and metals. He also wrote on pharmacology.

In the tenth century scholars became interested in the classification of sciences. Al-Farabi and al-Khwarizmi each wrote a book on the subject. The former, in addition, produced a book, **On Music**, probably «the most important oriental work on the theory of Music.» But al-Farabi was primarily a great philosopher.

The Arabs made an especial contribution in optics. Alhazen, whose name in Arabic is ibn al-Haitham, belongs to the tenth and eleventh centuries. He was originally of Basra, but he migrated to Cairo where he served the Fatimid Caliph al-Hakim. He interested himself in mathematics, physics and medicine, this being his original profession. His principle work was on Optics, *Kitab al-manazir*. He did not accept the theory of Euclid and Ptolemy that the eye sends out visual rays to the object of vision. In this work he deals with the propagation of light and colours, optical illusions and reflection, and with experiments.

It is not possible to enumerate every contribution that Arabs have made in such a short chapter. In the fields of botany, zoology, mineralogy and pharmacology the Arabs excelled beyond many peoples. In botany, it may be added, they were not influenced by earlier tradition, because apparently they were not acquainted with the botanical works of Aristotle, although Tunisians might have been acquainted with some Latin works on the subject.

Furthermore, as in the case of other branches of knowledge and fields of inquiry which the Arabs first translated or adapted, they soon began contributing on their own. Knowing that a degree of a meridian measured for the calculation of the circumference of the earth had been done earlier by the Greeks, al-Ma'mun ordered that a similar thing be done, but the method differed from that of the Greeks. A team of observers setting out from the same point in the plain of Sinjar in northern Iraq, separated themselves into two groups, one walking north and the other south. They went on until they saw that the polar star differed one degree in its position. The distance covered was then measured, and the average was calculated.

Historians also inform us that two, possibly three observatories, were active during the reign of al-Mamun, at Jundeshapur, Baghdad and Damascus. The first had probably been in existence earlier, but the latter two have been ascribed to the Abbasid caliph himself. Following the **Sindhind** method, astronomers prepared the tables which came to be known as Tables of al-Ma'mun, based on observations collected at the observatories.

Practical and theoretical interests in these matters went abreast. While astronomical tables based on observations were being prepared, al-Khwarizmi, who lived at the same time, produced his **Algebra**. Beginning with equations of the second degree, he proceeds to discuss algebraic multiplication and division. Other treatises included those pertaining to the measurement of surfaces.

The sons of Shakir wrote a number of works on the measurement of plane and spherical surfaces, and on mechanics.

Abu Ma'shar, better known in the West as Abumazar, of the ninth century, wrote numerous books on astronomy. He was also an astrologer, probably incorporating the earlier traditions of the Indians, Persians, Greeks and others. It is interesting to observe that when the Arabs were enjoying their glorious period of science, it was the astronomer who was appreciated. As soon as the Arabs set on a path of decadence, the astronomer was superseded by the astrologer. Stars regained their position as determining the fate of men.

In the field of geometry we have Thabit ibn Qurra, who is often referred to as the greatest Arab geometer. He knew both Greek and Syriac and his translations included works from both languages. Seven books on conic sections were translated by him. He revised an earlier translation of Euclid. His own works were mainly on astronomy and geometry, but he touched on almost

every scientific subject of his day. Memoirs ascribed to him include postulates and axioms of Euclid, on method in geometry and on mechanics. The earliest work on the shadow of gnomon (the sundial) is believed to have been written by him.

Al-Battani belongs to the tenth century. He was an illustrious scholar in that age of great leaning. His observations and astronomical tables diverge farther from the Indian ways and methods. Although he produced a vast literature on a number of mathematical and astronomical issues, he is especially connected with trigonometry. It is not certain whether he himself discovered the first notions of the subject; but it is due to him that they became known in the way we use them today.

In the ninth and tenth centuries some Arabs were busily engaged in producing definitive forms of their scientific knowledge, while others began to discuss what may be called philosophy of science or the nature of scientific knowledge: Al-Kindi, al-Farabi, Avicenna and Rhazes among others.

Khayyam was an astronomer and a mathematician of the late eleventh and early twelfth century. In mathematics he wrote a book called **Algebra**, the greater part of which is devoted to cubic equations, in addition to a number of other serious mathematical questions.

Arab astronomy flourished in Spain in the eleventh and twelfth centuries. Az-Zarkali invented an astrolabe on which he wrote a treatise; a whole literature developed out of it. Al-Bitruji had original ideas on the movements of the planets.

It is interesting to observe that research in sciences was not hampered by any fixed views. This applies to Arab scholars both in the East and in the West. Al-Biruni, one of the greatest minds in Arabic scientific learning, held that astronomical hypotheses were all relative. Arab scholars in Spain were farther separated from the Indian and Persian influences, and could, therefore, be even freer in their criticism, even of theories which had strong foundations, such as the theory of the multiplicity and eccentricity of the spheres.

Rhazes, of the early tenth century, was more of a Platonist than anything else, and in **The Spiritual Physick** he exhibits a talented mind with a great deal of independence. Al-Farabi, who died in 950, drew on Aristotle for his Philosophy, but it had Neoplatonism as its superstructure. His political theory, although Platonic in essence, was an original contribution.

Philosophical systems of schools are almost always part of the general picture of intellectual life of the society. This is more so in societies where religion is the dominating factor in life. Islam is no exception. In so far as philosophy deals with problems and issues of the universe, its creation and the cause thereof, it is bound to have confrontations with the faith. One of the main issues which faced Muslim thinkers and philosophers was, as we have seen, the relation between reason and revelation.

Philosophy and theology had many contacts. It was a question of propositions which scholars and philosophers discussed in their own ways.

For example, religion held the view that the world was created while philosophy spoke of its eternity.

This latter view is contradictory to the dogmatic conception. Muslim Philosophers tried to think of the world as emanating from God, the necessary being, as a contingent. This eliminated the distinction between God and the world.

Philosophy continued to be the occupation of small groups of people in the tenth and early eleventh centuries. Other concerned themselves with finding points of contact between philosophical metaphysics and religious beliefs. Eventually a stage of consciousness was reached at which the two doctrines established contacts along all points, but integration with each other was never allowed to take place. This brought about a serious discussion of the nature of religion and philosophy and their mutual relationship, positively and negatively, which seems to have led to the doctrine of Prophetic Revelation which was, in the words of Dr. Fazul Rahman, «a magnificent creation of Islamic civilization. In itself it was an impressive achievement, and.... it represented a genuine landmark in human thought.» But orthodoxy would not accept it.

There were many attackers. But the one whose clear thinking and argumentation did more than any one else along those lines was al-Ghazali (d. 1111). In his the 'Incoherence of the Philosophers' (*Tahafut la-Falasifa*) he described the insufficiency of that doctrine from the religious point of view; and the doctrine of the Will of God of the Ash'arites was substituted. This led to a triumph of Ash'arism.

In the Islamic West Averroes of the twelfth century wrote 'The Incoherence of the Incoherence' (*Tahafut at-Tahauft*) refuting al-Ghazali's arguments and trying to show that apparent contradictions between philosophy and religion could be removed. «He

was for a harmonious reconciliation of the two. But Averroes' faith in the capacity of reason to attain to a knowledge of the inner secrets of the world failed to convince the main body of scholarly opinion in Spain and North Africa that there was a place for philosophy alongside their theology».

«Henceforth, two ways were left open in which philosophy could operate, and it pressed itself through both these channels. One was that philosophical speculation should dispute the structures of orthodoxy and should seek for itself a heterodox medium. This medium was found in philosophical Sufi thought, a fact which was undoubtedly facilitated by the mystical tendencies in the thought of the Muslim philosophers themselves, especially in that of Ibn Sina. The other alternative was to give up the idea of producing a rival system to theology as far as religious dogma was concerned and rather to work within the orthodox system. This is what made possible the expansion of the *kalam* into a systematic body of thought comprising epistemology and metaphysics, an expansion which first appears in the work of the theologian-philosopher Fakhr ad-Din al-Razi (d. 1209). Within this system, however, an astonishingly wide scope was offered for the exercise of speculative reason, an activity which had a very lively and rich career for several centuries».

Thus «while the purely intellectual philosophical tradition survived in the form of commentaries or handbooks with different rhythms either as an instrument of theology or as its critic, philosophy after al-Ghazzali developed in a new and important direction which may be called a purely religious philosophy or philosophical religion. This development, although profoundly influenced in its course by Sufism and its modes of thought, is, nevertheless, to be distinguished from the latter. For, the phenomenon we have termed philosophical religion, although it often identifies its doctrines with those of the Sufis, especially of speculative Sufism, is characterized by rational argumentation and purely intellectual and logical thought-process while Sufism relies exclusively on gnostic experience or intuition and uses poetic imagination rather than purely rational processes».

In the final analysis the Greek type of rational, logical philosophy based on reason as an opposite number to revelation failed to establish itself in Islamic thought. It is true there was a distinct Muslim philosophical tradition; but it was based on the tenets of revelation.

acquainting themselves with the cultural and intellectual heritage of the Ancients, classifying this knowledge, adding their own contributions and striking new paths in the field of knowledge. In the eleventh and twelfth centuries Europe, or at least its western regions, began to be acquainted with modes of life and thought which differed from its own experiences. A number of historical events and developments enhanced this process. Foremost among these were growth of cities and city life in southern Europe, the resumption of international commerce, particularly with the Eastern Mediterranean, the reconquest of Spain and Sicily from the Arabs, and the Crusades.

The Arabs had conquered Spain early in the eighth century. The country remained under the sovereignty of the Umayyad Caliphate of Damascus till the middle of the same century. But Spain did not recognize the authority of the Abbasids, who took over then. In 756 a new Umayyad dynasty established itself in Spain, with Cordova as its capital. It was from then onwards that Arab civilization began its serious development in Spain, a development which continued, in certain respects until the thirteenth century. Its achievements were valuable.

Certain mountainous principalities in the northern parts of Spain remained outside the domination of the Arabs, and when the Umayyad power in Spain set on a path of political disintegration early in the eleventh century, those Spanish kingdoms, as they came to be known, like the kingdoms of Asturias, Navarre, Castille and Aragon, seized the opportunity of «reconquering» Spanish territory from the Arabs. The story of this «reconquista» is a long one, but it is sufficient to mention that Toledo fell in 1085, Cordova in 1236 and Seville in 1248. The capture of Toledo in particular threw the doors of contact with Arab civilization widely open to the Europeans. These had already known of this civilization, but now those anxious to learn went there and were directly exposed to the treasures of Arab culture and vast scientific and philosophic literature available. When Toledo fell to the Spaniards Latin students began their pilgrimage to it to study **Artes Arabum**. The first prominent European to visit the city was the English mathematician and philosopher Adelard of Bath, who went there early in the twelfth century. A contemporary of his, Petrus Alphonsi, went from Spain to England, where he became physician to Henry I. Both men translated Arabic astronomical and mathematical works into Latin, and thus helped spread the sciences of the Arabs for the first time in Europa. Gerard of 60

Cremona went to Toledo shortly after Adelard. He found Ptolemy's great astronomical and geographical work **Almagest**, which he translated into Latin from Arabic. Gerard eventually produced about eighty translations from Arabic.

In the twelfth century a «school» of translation from Arabic into Latin, through Spanish or Hebrew, was founded in Toledo by Archbishop Raymond. This school flourished until the thirteenth century and found patronage from Alfonso the Sage, King of Castille (1252-1284), who «engaged the services of Abu Bakr ar-Riquti, one of the most learned men of his generation, and built for him a school», where he gave instruction in all sciences to students who went to him, irrespective of their origin. Either at this school or outside it, but certainly under the guidance and patronage of Alfonso, numerous works were translated not only into Latin, but into Spanish, which was then emerging as a national language. However, Raymond Lull, working under the impact of the school of Toledo, was instrumental in founding, in 1276, a college of friars for the study of Arabic at Miramar. This was followed in the fourteenth century by a number of such schools opened at Paris, Louvain and Salamanca.

The conquest of Sicily by the Normans late in the eleventh century, after about one and a half centuries of Arab rule, was equally important for the transmission of the legacy of Arab civilization. For in Sicily there developed, under the Arabs, not only a material civilization in agriculture, trades and crafts, but also a serious interest in minor arts and architecture and in scientific knowledge, particularly in medicine, which had come from Tunisia.

The Norman Kings of Sicily followed policy of toleration, and thus benefited from the abilities of their subjects. Roger I, Roger II, Frederick II, Manfred and Charles I drew to their capital (Palermo) scholars and learned men regardless of language or religion. The population of the Island used Arabic, Latin and Greek widely as vernacular dialects and, within limited areas, as literary forms of expression, and here a number of translations, mainly astronomical and mathematical, were made from Arabic into Latin. These belong to the twelfth century; but the thirteenth century saw an interest in the translation of medical works. Faragut completed a translation of Rhazes' **continens** in 1279. Michael Scott translated into Latin the entire biological and zoological works of Aristotle from Arabic versions. Of especial interest is the translation of the abstract of **De Animalibus** with the commentary of Avicenna.

It was in the middle of the twelfth century that al-Idrisi, the foremost Arab geographer and cartographer, lived and worked at the court of the Norman King of Sicily, Roger II. His work in geography, when later translated into Latin, became a guide to geographers, and remained so for some time.

Like Spain, Sicily was a door which, when thrown open, put Europe into direct contact with the store of knowledge which the Arabs had built up over centuries. Both places were channels through which the legacy was transmitted to Europe.

The third event which occupied parts of Europe and the Eastern Mediterranean during the twelfth and thirteenth centuries was undoubtedly the Crusades. They were a series of wars which Europe waged against both the Muslim states of the Levant and Byzantium; they had their successes and defeats; and various factors - religious, political, social, economic - had their roles to play. The Crusades involved Europeans from as far as England, and Orientals from as far as Iraq and Georgia. The contacts between the two groups were numerous and long-lasting and seemingly the gates of the East were thrown open to the peoples from West. But what was the role of the Crusaders in the transmission of the legacy of Arab civilization and culture to Europe?

For an appreciation of the part played, a number of factors must be remembered. In the first place the Crusaders who came to the East and founded the Latin Kingdom of Jerusalem and other principalities were sparsely spread over a fairly large area. Secondly the bulk of the men and women came from the common people whose interests could not be intellectual. Thirdly, by the time the Crusaders settled in the area Arabic intellectual interests were waning and were far from flourishing or dynamic. It is no wonder therefore to find that very few works on science were translated from the Arabic during the two centuries of Crusaders' settlement in the East. Probably the only scientific work worth mentioning which was translated from Arabic during that period is the *Liber regalis*, translated into Latin by Stephen of Pisa.

But through the Crusades another aspect of the legacy was transmitted: it touched the social and practical. Europeans carried back with them plants such as sesame, carobs, maize, rice, lemons, melons and apricots. New goods and fashions also spread in the West during this period: cottons, baldachines (from Baghdad), muslins (from Mosul), damask (from Damascus) atlases, new colours like lilac, an increase in the use of spices and scents, cloves, and glass-mirrors. In building and decorative arts

the Europeans learnt directly from the East the use of the pointed arch and Arabesques.

Probably one of the best ways to consider the Crusades as a channel of transmission of the Arab inheritance is to examine the evidence of language. Although some Western words found their way into Arabic, it is the impact of Arabic words on European languages which is revealing. Literally hundreds of words have found their way to the West. It is hardly possible to do more than give some examples here: jar, syrup, douane, bazaar, tariff, arsenal, admiral, elixir, alcohol are known to many people.

In conclusion it may be said that when Europe became seriously acquainted with Arab culture and civilization, from the eleventh century onwards, three gates of the treasure-houses of this civilization had opened to it: Spain, Sicily and the East. Of these Spain and Sicily supplied Europe with the intellectual foundations of Arab life and thought. The East, through the Crusaders, gave it more of the practical aspects of the civilization.

In illustrating the impact Ibn-Rush had on the Christian intellectual life, the words of Philip K. Hitti provide an apt conclusion to this brief study. He says:

«within fifty years after his death Averroes' name became widely known in European learned circles. Improved Latin editions, especially those made from Hebrew, followed in rapid succession... Averroism, studying Aristotle through Averroes' commentaries, became widespread. It established itself as a major discipline in university curricula, and for three centuries agitated European minds as perhaps nothing else did.»

Select Bibliography

Affifi, A.E. *The Mystical Philosophy of Muhyid Din-ibnul Arabi*. Cambridge, 1939

Ali, A. Yusuf. *The Holy Qur-an*. Lahore, 1934, 1959

Ali, Syed Ameer. *The Spirit of Islam*. London, 1939

Arberry, A.J. *Revelation and Reason in Islam*. London, 1957

Arnold, T.&Gallumie A. (edes.). *Legacy of Islam*. London, 1952

Blachere, R. *Introduction au Coran*. Paris, 1947

Depont, O., and X. Coppolani. *Les Confreries religieuses musulmanes*. Algiers, 1897 (covers the history of the Sufi orders with special reference to North Africa).

63 Donaldson, D.M. *The Shi'ite Religion*. London, 1933

EARLY ARAB ISLAMIC CULTURE

- Encyclopedia of Islam*, The. Leyden, 1913-38; new edition in progress Fazul, Rahman. *Islam*. London, 1969
- Fyzee, A.A.A. *Outlines of Muhammadan Law*. London, 1949
- Fyzee, A.A.A. *A Shi'ite Creed*. London, 1924
- Gardet, L., and M.M. Anawati. *Introduction a la theologie musulmane*. Paris, 1948
- Gauthier, L. *Ibn Rochd (Averroes)*. Paris, 1948
- Gibb, H.A.R. *Muhammedanism* (second edition). London, 1961
- Gibb, H.A.R. «The structure of religious thought in Islam», *Muslim World*, XXXVIII (1948), pp. 17-28, 113-123, 185-197, 280-291
- Goldzieher, I. *Muhammedanische Studien*, vol. II, Halle 1890; transl. S.M. Steen and C.r. Barber, *Muslim Studies*, vol. II, London, 1971
- Grunebaum, G.E. von. *Medieval Islam*. University of Chicago Press, 1953
- Hamidullah, M. *The Battlefields of the Prophet*. Lahore, 1948; *Le Prophete de L'Islam*, 2 vols., Paris, 1959
- C.R.S. Harris, *Duns Scotus*. Oxford, 1927
- Hitti, P.K. *Makers of Arab History*. New York, 1968
- Hourani, G.F. (ed. and trans.), 'al-Kindi's Treatise on Intellect', in *Islamic Studies*, III/2, Karachi, 1964
- Ivanow, W. *Brief survey of the evolution of Ismailism*. Leiden, 1952
- Laoust, H. *Essai sur Les Doctrines sociales et politiques de Taki-al-Din Ahmad b. Taimiya*. Cairo, 1939
- Levy, Reuben. *The Social Structure of Islam*. Cambridge, 1958
- Lewis, B. *The Origins of Islamism*. Cambridge, 1940
- McCarthy, R.J., *The theology of al-Ash'ari*. Beirut, 1953
- MacDonald, D.B. *Development of Muslim Theology, Jurisprudence and Constitutional Theory*. London 1963, repr. Lahore, 1960
- Nasr, Seyyed Hossein. *Three Muslim Sages*. Harvard University Press, 1963
- Noeldeke, Th. *Geschichte des Qorans*. 2nd ed. by F. Schwally et al. 3 vols. Leipzig 1909-38
- O'Leary, De Lacy. *Arabic Thought and Its Place in History*. London, 1922
- Robson, J. *An Introduction to the Science of Tradition*. London, 1953
- Ch. De La Ronciere. *La Decouverte de L'Afrique au Moyen Age*. 2vols., Cairo, 1925-27
- Sayili, Aydin. *The Observatory in Islam*. Ankara, 1960
- Schacht, J. *An Introduction to Islamic Law*. Oxford, 1964
- Schacht, J. *The Origins of Muhammadan Jurisprudence*. Oxford, 1952
- Al-Shafi'i. *Al-Risalah*. Eng. trans. Majid Khadduri, Baltimore, 1961
- Trimingham, J.S. *The Sufi Orders in Islam*. Oxford, 1971
- Tritton, A.S. *Materials on Muslim Education in The Middle Ages*. London, 1957
- Tyan, E. «Methodologie et sources du droit en Islam», *Studia Islamica*, X (1959), pp. 79-109
- Watt, W.M. *Bell's Introduction to the Qur'an* Edinburgh, 1970
- Watt, W. Montgomery, *Islamic Philosophy and Theology*. Edinburgh, 1962
- Watt, W. Montgomery. *Muhammad at Mecca*. Oxford, 1953; and *Muhammad at Medina*. Oxford, 1958
- Wensinck, A.J. *The Muslim Creed*. Cambridge, 1932; and *La Pensée de Ghazali*. Paris, 1940

The End